

REMARKS/ARGUMENTS

Claims 1 – 20 are presented for reconsideration and further examination in view of the foregoing amendments and the following remarks.

In the outstanding Office Action, the Examiner rejected claims 1 – 20 under 35 U.S.C. §112, first paragraph; rejected claims 1 – 6, 9, 11, 12 and 14 – 18 under 35 U.S.C. §103(a) as being unpatentable over reference no. WO 99/16380 to Taub et al. (hereinafter referred to as “the Taub et al. ‘380 reference”) in view of U.S. Patent No. 6,152,731 to Jordan et al. (hereinafter referred to as “the Jordan et al. ‘731 patent”); rejected claims 7 and 13 under 35 U.S.C. §103(a) as being unpatentable over the Taub et al. ‘380 reference in view of the Jordan et al. ‘731 patent and U.S. Patent No. 4,850,864 to Diamond (hereinafter referred to as “the Diamond ‘864 patent”) and further in view of U.S. Patent No. 6,413,083 to Hamilton (hereinafter referred to as “the Hamilton ‘083 patent”); rejected claims 8 and 10 under 35 U.S.C. §103(a) as being unpatentable over the Taub et al. ‘380 reference in view of the Jordan et al. ‘731 patent and the Diamond ‘864 patent and further in view of U.S. Patent No. 6,227,850 to Chishti et al. (hereinafter referred to as “the Chishti et al. ‘850 patent”); rejected claim 19 under 35 U.S.C. §103(a) as being unpatentable over the Taub et al. ‘380 reference in view of the Jordan et al. ‘731 patent and the Diamond ‘864 patent and further in view of U.S. Patent No. 6,350,120 to Sachdeva et al. (hereinafter referred to as “the Sachdeva et al. ‘120 patent”); and rejected claim 20 as being unpatentable over the Taub ‘380 reference in view of the Jordan et al. ‘731 patent and the Sachdeva et al. ‘120 patent.

By this Response and Amendment, claims 1, 11, 18 and 20, have been amended and, as amended, the rejections thereto and the rejections to the claims dependent thereon have been traversed. Support for the amendments to the independent claims can be found on page 11, lines 12 – 14 and on page 12, lines 3 – 4 of the originally filed specification. Therefore, Applicants submit that the no new matter, within the

Appl. No. 10/797,126
Reply to Office action of August 2, 2006
Attorney Docket No. 25537Y

meaning of 35 U.S.C. §132, has been introduced to the application.

Rejections Under 35 U.S.C. §112, First Paragraph

The Examiner rejected claims 1 – 20 as containing new matter. Specifically, the Examiner notes that the phrase “an exclusively virtual image of at least one tooth” is not found in the original specification.

Response

By this Response and Amendment, Applicants respectfully traverse the Examiner’s rejection. Support for the phrase: “an exclusively virtual image of at least one tooth” is found on page 8, lines 3 – 8 which states that “a 3-D representation of teeth with brackets... does not need to be represented in the form of an image and it is at times sufficient for it to exist virtually....” Applicants submit that this language supports claim language directed toward an exclusively virtual image.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. §112, first paragraph.

Rejections Under 35 U.S.C. §103(a)

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) some suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir.

Appl. No. 10/797,126
Reply to Office action of August 2, 2006
Attorney Docket No. 25537Y

1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

1. The Taub et al. '380 Reference In View Of The Jordan et al. '731 Patent

The Examiner rejected claims 1 – 6, 9, 11, 12 and 14 – 18 as being unpatentable over the Taub et al. '380 reference in view of the Jordan et al. '731 patent.

Response

By this Response and Amendment, Applicants respectfully traverse the Examiner's rejection, since the combination of prior art references does not disclose, teach or suggest all of the features of the independent claims of the present application.

Independent claims 1, 11 and 18 similarly recite "...displaying said bracket on a labial surface of said at least one tooth or alternatively displaying said bracket on a lingual surface of said tooth and displaying said at least one tooth with said bracket thereon in any of three dimensions...."

The Taub et al. '380 reference discloses a device for providing guidance information for an intended position of a real orthodontic element on a tooth's surface and simultaneously positioning the element on the tooth's surface according to the intended position. The device requires the use of a positioning device 20 for placing a bracket on a tooth. The bracket 20 includes a camera 26 (or other imaging device) mounted on a mount. The Jordan et al. '731 patent discloses a method of creating a three-dimensional dental model. The instrument is held by a dentist and used to apply a bracket on a tooth using the real image displayed on the computer.

In contrast to the presently claimed invention, the cited prior art combination Taub et al. '380 reference with the Jordan et al. '731 patent does not disclose teach or suggest "displaying said

Appl. No. 10/797,126
Reply to Office action of August 2, 2006
Attorney Docket No. 25537Y

bracket on a labial surface of said at least one tooth or alternatively displaying said bracket on a lingual surface of said tooth” as recited in amended independent claim 1 and as similarly recited in independent claims 11 and 18. The cited prior art combination is silent as to which surface a bracket should be placed for proper treatment. However, the presently claimed invention allows placement on either the buccal or the lingual side of the teeth. Thus, for at least this reason, the cited prior art combination does not render the presently claimed invention obvious.

Further, the cited prior art combination does not disclose, teach or suggest “and displaying said at least one tooth with said bracket thereon in any of three dimensions” as recited in independent claim 1 and as similarly recited in independent claims 11 and 18. The Examiner cites the Jordan ‘731 patent as providing disclosure of viewing a tooth in three-dimensions. However, the Jordan ‘731 patent relies on an image of an actual tooth shown from all angles. The presently claimed invention shows “an exclusively virtual image of a tooth *with a bracket* in any of three dimensions.” The cited prior art combination simply does not disclose such a feature. Thus, for at least this additional reason, the cited prior art combination does not render the presently claimed invention obvious since the cited prior art combination fails to disclose, teach or suggest each of the claimed features of the independent claims.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection under 35 U.S.C. §103(a).

2. The Taub et al. ‘380 Reference In View Of The Jordan et al. ‘731 Patent And The Diamond ‘864 Patent And Further In View of the Hamilton ‘083 Patent

The Examiner rejected claims 7 and 13 as being unpatentable over the Taub et al. ‘380 reference in view of the Jordan et al. ‘731 patent and the Diamond ‘864 patent and further in view of

the Hamilton '083 patent.

Response

By this Response and Amendment, Applicants respectfully traverse the Examiner's rejection, since all of the features of the presently claimed invention are not disclosed, taught or suggested by the cited prior art. The arguments above with respect to the Taub et al. '380 reference and the Jordan et al. '731 patent are incorporated by reference.

Adding the Hamilton '083 patent and the Diamond '864 patent to the combination of the Taub et al. '380 reference and the Jordan et al. '731 patent does not cure the deficiencies of the cited prior art combination. The Hamilton '083 patent discloses a computerized system for diagnosing a tooth-size discrepancy and recommending an ideal arch size based on the size of an individual patient's teeth. The Diamond '864 patent discloses a bracket placing instrument usable with a computer that displays an image of a tooth. The instrument is held by a dentist and used to apply a bracket on a tooth using the real image displayed on the computer.

In contrast to the presently claimed invention, the cited prior art combination is silent as to "displaying said bracket on a labial surface of said at least one tooth or alternatively displaying said bracket on a lingual surface of said tooth and displaying said at least one tooth with said bracket thereon in any of three dimensions" as recited in claims 1 and 11. As such, the addition of the Hamilton '083 patent and the Diamond '864 patent to the combination of the Taub et al. '380 reference with the Jordan et al. '731 patent still does not teach the presently claimed invention and therefore does not render independent claim 1 and 11 obvious. Similarly, as dependent claims contain all of the features of the independent claims from which they depend, the cited prior art combination

does not render claims 7 and 13 obvious for at least the same reasons as claims 1 and 11.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the outstanding rejection under 35 U.S.C. §103(a).

3. The Taub et al. '380 reference In View Of The Jordan et al. '731 Patent And The Diamond '864 Patent And Further In View Of The Chishti et al. '850 Patent

The Examiner rejected claims 8 and 10 as being unpatentable over the Taub et al. '380 reference in view of the Jordan et al. '731 patent and the Diamond '864 patent and further in view of the Chishti et al. '850 patent.

Response

By this Response and Amendment, Applicants respectfully traverse the Examiner's rejection, since all of the features of the presently claimed invention are not disclosed, taught or suggested by the cited prior art. The arguments above with respect to the Taub et al. '380 reference, the Jordan et al. '731 patent, and the Diamond '864 patent are incorporated by reference.

Adding the Chishti et al. '850 patent to the combination of the Taub et al. '380 reference, Jordan et al. '731 patent and the Diamond '864 patent does not cure the deficiencies of the cited combination. The Chishti et al. '850 patent discloses a system that captures three-dimensional (3D) data associated with a patient's teeth, determines a viewpoint for the patient's teeth, applies a positional transformation to the 3D data based on the viewpoint, and renders the orthodontic view of the patient's teeth based on the positional transformation.

However, in contrast to the presently claimed invention, the cited prior art combination is silent as to "displaying said bracket on a labial surface of said at least one tooth or alternatively

displaying said bracket on a lingual surface of said tooth and displaying said at least one tooth with said bracket thereon in any of three dimensions” as recited in amended independent claim 1. As such, the cited prior art combination does not render amended independent claim 1 obvious. Similarly, as dependent claims contain all of the features of the independent claims from which they depend, the cited prior art combination does not render claims 8 and 10 obvious for at least the same reasons as claim 1.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the outstanding rejection under 35 U.S.C. §103(a).

4. The Taub et al. ‘380 reference In View Of The Jordan et al. ‘731 Patent And The Diamond ‘864 Patent And Further In View Of The Sachdeva et al. ‘120 Patent

The Examiner rejected claim 19 as being unpatentable over the Taub et al. ‘380 reference in view of the Jordan et al. ‘731 patent and the Diamond ‘864 patent and further in view of the Sachdeva et al. ‘120 patent.

Response

By this Response and Amendment, Applicants respectfully traverse the Examiner’s rejection, since all of the features of the presently claimed invention are not disclosed, taught or suggested by the cited prior art. The arguments above with respect to the Taub et al. ‘380 reference, the Jordan et al. ‘731 patent, and the Diamond ‘864 patent are incorporated herein by reference.

Adding the Sachdeva et al. ‘120 patent to the combination of the Taub et al. ‘380 reference, Jordan et al. ‘731 patent and the Diamond ‘864 patent does not cure the deficiencies of the cited prior art combination. The Sachdeva et al. ‘120 patent discloses using a three-dimensional digital model of

an orthodontic structure to develop a custom jig for installing an orthodontic bracket.

However, in contrast to the presently claimed invention, the cited prior art combination is silent as to “wherein said processor displays said at least one bracket on a labial surface said teeth or alternatively displaying said bracket on a lingual surface of said teeth and displaying said teeth with said at least one bracket thereon in any of three dimensions” as recited in amended independent claim 18. As such, the cited prior art combination does not render amended independent claim 18 obvious. Similarly, as dependent claims contain all of the features of the independent claims from which they depend, the cited prior art combination does not render claim 19 obvious for at least the same reasons as claim 18.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the outstanding rejection under 35 U.S.C. §103(a).

5. The Taub et al. '380 reference In View Of The Jordan et al. '731 Patent And Further In View Of The Sachdeva et al. '120 Patent

The Examiner rejected claim 20 as being unpatentable over the Taub et al. '380 reference in view of the Jordan et al. '731 patent and further in view of the Sachdeva et al. '120 patent.

Response

By this Response and Amendment, Applicants respectfully traverse the Examiner's rejection, since all of the features of the presently claimed invention are not disclosed, taught or suggested by the cited prior art. The arguments above with respect to the Taub et al. '380 reference, the Jordan et al. '731 patent, and the Sachdeva et al. '120 patent are incorporated herein by reference.

Independent claim 20 recites “...wherein said processing includes displaying said bracket on a

labial surface of said at least one tooth or alternatively displaying said bracket on a lingual surface of said tooth and displaying said at least one tooth with said bracket thereon in any of three dimensions....”

The Taub et al. ‘380 reference discloses a device for providing guidance information for an intended position of a real orthodontic element on a tooth’s surface and simultaneously positioning the element on the tooth’s surface according to the intended position. The device requires the use of a positioning device 20 for placing a bracket on a tooth. The bracket 20 includes a camera 26 (or other imaging device) mounted on a mount. The Jordan et al. ‘731 patent discloses a method of creating a three-dimensional dental model. The Sachdeva et al. ‘120 patent discloses using a three-dimensional digital model of an orthodontic structure to develop a custom jig for installing an orthodontic bracket.

In contrast to the presently claimed invention, the cited prior art combination does not disclose, teach or suggest “wherein said processing includes displaying said bracket on a labial surface of said at least one tooth or alternatively displaying said bracket on a lingual surface of said tooth and displaying said at least one tooth with said bracket thereon in any of three dimensions” as recited in amended independent claim 20. The cited prior art combination is silent as to which surface a bracket should be placed for proper treatment. However, the presently claimed invention allows placement on both the buccal and the lingual sides of the tooth. Thus, for at least this reason, the cited prior art combination does not render the presently claimed invention obvious.

Further, the cited prior art combination does not disclose, teach or suggest “and displaying said at least one tooth with said bracket thereon in any of three dimensions” as recited in independent claim 20. The Examiner cites the Jordan ‘731 patent as providing disclosure of viewing a tooth in

Appl. No. 10/797,126
Reply to Office action of August 2, 2006
Attorney Docket No. 25537Y

three-dimensions. However, the Jordan '731 patent relies on an image of an actual tooth shown from all angles. The presently claimed invention shows "an exclusively virtual image of a tooth *with a bracket* in any of three dimensions." The cited prior art combination simply does not disclose such a feature. Thus, for at least this additional reason, the cited prior art combination does not render the presently claimed invention obvious.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the outstanding rejection under 35 U.S.C. §103(a).

CONCLUSION

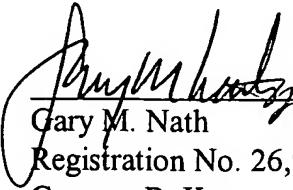
In light of the foregoing, Applicants submit that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicants respectfully request that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

In the event this paper is not timely filed, Applicants petition for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,
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